

ABSTRACT

A method of friction welding first and second parts together at an angular orientation relative to each other includes the steps of mounting the first part in a spindle for axial rotation and the second part in a non-rotatable holder. The spindle is then rotated and the angular orientation of the first part relative to the second part is determined at any specific time. The holder is moved toward the spindle to bring the second part into frictional contact with the first part at a selected one of the specific times that the angular orientation is determined. Accordingly, due to frictional contact, the respective contacting surface of the parts are melted. The speed of the rotation of the spindle is then decreased and the holder is moved toward the spindle to forcibly urge the first and second parts together at the contacting surface. Rotation of the spindle is stopped at a specific determined angular orientation of the first part relative to the second part while continuing to forcibly urge the parts together to allow cooling and fused solidification of the contacting surfaces.